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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/567,283	02/03/2006	Kazuaki Fukushima	3712174.00519	9786
29175	7590	09/23/2010	EXAMINER	
K&L Gates LLP P. O. BOX 1135 CHICAGO, IL 60690			QIAN, YUN	
ART UNIT	PAPER NUMBER			
	1793			
NOTIFICATION DATE	DELIVERY MODE			
09/23/2010	ELECTRONIC			

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

[chicago.patents@klgates.com](mailto:chicago.patents@klgates.com)

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,283	<b>Applicant(s)</b> FUKUSHIMA ET AL.
	<b>Examiner</b> YUN QIAN	<b>Art Unit</b> 1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133).

Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 21 July 2010.

2a) This action is FINAL.      2b) This action is non-final.

3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 29-32 and 37-39 is/are pending in the application.

4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) Claim(s) \_\_\_\_\_ is/are allowed.

6) Claim(s) 29-32, 37-39 is/are rejected.

7) Claim(s) \_\_\_\_\_ is/are objected to.

8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.

10) The drawing(s) filed on 03 February 2006 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) All    b) Some \* c) None of:

1. Certified copies of the priority documents have been received.
2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) Notice of References Cited (PTO-892)

2) Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) Information Disclosure Statement(s) (PTO/SB/06)  
 Paper No(s)/Mail Date \_\_\_\_\_

4) Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_

5) Notice of Informal Patent Application

6) Other: \_\_\_\_\_

**DETAILED ACTION**

***Status of Claims***

Claims 29-32 and 37-39 remain for examination. Claims 1-28, 33-36 and 40-57 have been cancelled.

***Previous Grounds of Rejection***

The non-statutory obviousness-type double patenting rejection with respect to claims 29-32 and 37-39, as claiming the same invention as that of claims 1-5 of US Patent No. 7,651,803 has been withdrawn, because the Terminal Disclaimer filed on February 12, 2010 has been approved.

Regarding claims 29-32 and 37-39, the rejection under 35 U.S.C. 102 (e) as being anticipated by Nuber et al. (US 6,890,676) stands.

***Previous Grounds of Rejection***

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 29-32 and 37-39 are rejected under 35 U.S.C. 102 (e) as being anticipated by Nuber et al. (US 6,890,676).

Regarding claim 29, Nuber et al. teaches a fullerene-based proton conductor including a spacer molecule connected to the fullerene (corresponding to applicant's

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C<sub>m</sub>) and a proton conductive functional group attached to the spacer molecule. The spacer molecule is selected from the group of a partially or a perfluorinated compound such as CF<sub>2</sub>. The proton conductive functional group is an acidic functional group, such as sulfonic acid group-SO<sub>3</sub>H (corresponding to applicant's Gp1) (claims 1-13).

Regarding claims 30-32, as discussed above, the spacer molecule CF<sub>2</sub> taught by Nuber et al. corresponds to the instant claimed C<sub>m</sub>, the proton conductive functional group of Nuber et al. corresponds to the instant claimed Gp1. It is used as proton conductors (col.1, line 10-15 and claim 1).

Regarding claim 37-39, Nuber et al. also teaches sulfoneimide linked fullerenes as shown below (col.12, lines 25-34).



wherein:

30            R<sub>f</sub> is —CF<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>SO<sub>2</sub>F,  
—CF<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>SO<sub>2</sub>NH<sub>2</sub>, and/or  
—CF<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>SO<sub>2</sub>NR<sup>1</sup>SiR<sup>2</sup><sub>3</sub> and/or  
—CF<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>SO<sub>2</sub>NR<sup>1</sup>SO<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>—  
C<sub>60</sub>—R<sub>b</sub> and/or  
CF<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>SO<sub>2</sub>NR<sup>1</sup>SO<sub>2</sub>CF<sub>2</sub>CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>—C<sub>60</sub>

It meets the claimed limitations.

#### ***Response to Arguments***

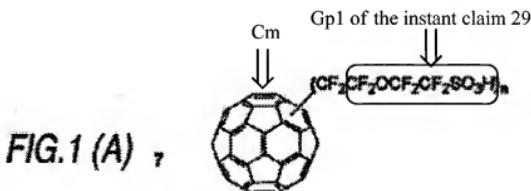
##### ***With regards to the previous Grounds of Rejection***

Applicant's arguments filed on July 21, 2010, with respect to claims 29-32 and 37-39, have been considered but are not persuasive. The examiner would like to take this opportunity to address the Applicant's arguments.

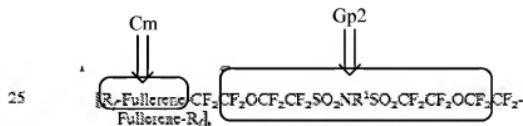
Applicants argue that the instant application does not recite a spacer molecule and require only a CF<sub>2</sub> group between the spherical carbon molecule and the ion-dissociative group, whereas every example disclosed in Nuber either: (a) includes a plurality of fluorinated groups between the fullerene molecule and each proton conductive functional group; or (b) includes a non-fluorinated spacer between the fullerene molecule and the proton conductive functional group (Remarks, pages 1-2).

The Examiner respectfully submits the instant claim contains a CF<sub>2</sub> group, which corresponds to the space group taught by Nuber et al. (i.e. C<sub>n</sub>F<sub>2n</sub>, wherein n is 1) (col. 4, lines 61-62). The space molecule CF<sub>2</sub> taught by Nuber et al. is bonded between a fullerene (C<sub>m</sub>) and a SO<sub>3</sub>H ion-dissociative group (Gp1) as the instant application.

Even assuming, for the sake of argument, for example, Fig 1A of Nuber shown below includes four different fluorinated group (Remarks, page 3), the group of CF<sub>2</sub>OCF<sub>2</sub>CF<sub>2</sub>SO<sub>3</sub>H contains a hydrogen that readily releases itself in the form of proton, therefore it corresponds to the instant claim's ion-dissociative group Gp1(Specification of the instant application, PGPUB US 2009/0004525, [0016]):



Regarding claims 37-39, the group  $\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{NR}^1\text{SO}_2\text{CF}_2\text{CF}_2\text{OCF}_2$  taught by Nuber (col. col.12, lines 25-34) corresponds to Gp2 of the instant claims as shown below:



wherein:

$R_f$  is  $-\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{F}$ ,  
 $-\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{NH}_2$ , and/or  
 $-\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{NR}^1\text{SIR}^3_3$  and/or  
 $-\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{NR}^1\text{SO}_2\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2-$   
 $\text{C}_{\text{so}}-\text{R}_f$  and/or  
 $\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2\text{SO}_2\text{NR}^1\text{SO}_2\text{CF}_2\text{CF}_2\text{OCF}_2\text{CF}_2-\text{C}_{\text{so}}$

Therefore, the rejection is proper and stands.

### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YUN QIAN whose telephone number is (571)270-5834. The examiner can normally be reached on Monday-Thursday, 10:00am -4:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Melvin Curtis Mayes can be reached on 571-272-1234. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YUN QIAN/  
Examiner, Art Unit 1793

September 19, 2010

/Melvin Curtis Mayes/  
Supervisory Patent Examiner, Art Unit 1793

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